JACOBS CONSULTANCY

RAIL STUDY
FOR ISLE OF WIGHT COUNCIL

EXECUTIVE SUMMARY

OCTOBER 2001

1 INTRODUCTION

1.1 Study remit

The Isle of Wight Council commissioned this outline feasibility and initial appraisal of options to expand the passenger rail network on the Island.

Undertaken by Jacobs Consultancy (formerly GIBB Transport Consulting), this study complements our review, commissioned by the Strategic Rail Authority (SRA), which has considered heavy rail and light rail options for future continued provision of passenger services on the existing Island Line route between Ryde Pier Head and Shanklin.

This study considers options of extension south of Shanklin to reach Ventnor, together with potential integration and extension with the existing IoW Steam Railway route to provide passenger services through Smallbrook from Ryde to Newport and thence possibly on to Cowes, again considering both conventional and light rail solutions.

The principal deliverable of the study is an initial high level feasibility and cost / benefit analysis of options for expanding the rail network on the Island by means of 'heavy rail', i.e. segregated way, and 'light rail', i.e. street tramway. The study includes:

- An identification and assessment of route and passenger service options,
- An initial assessment of the additional annual journeys and passenger revenue for each of the options.
- An initial assessment of appropriate service plans and resultant vehicle requirements, rolling stock outlays and operating costs.
- An indicative assessment of route feasibility, Infrastructure works and capital costs, and annual maintenance costs to be provided using benchmark costs.
- A high-level financial investment appraisal of the options, and an outline economic evaluation including non-priced user and non-user benefits, in a manner consistent with SRA Planning Criteria.

1.2 Background to the study

The IoW Council have a stated policy that they "will support and encourage the retention and extension of the Island's railway lines, and will ensure that disused railway lines are safeguarded from development to allow their use for sustainable transport purposes. This use could include rail schemes, cycle routes, pedestrian paths and bridleways." "Where lines are re-opened to rail traffic, there may be a possibility of linking routes by the street running of trains through town centres."

Various stakeholders have suggested scope for modernisation, conversion, and integration of Island Line with other passenger services and extension of the system. Some advocate conversion to a tramway capable of street running. Others have urged for replacing the railway with bus or guided bus solutions. SRA have confirmed that options involving closure of the railway are not on their agenda for the foreseeable future. The two year extension of the existing franchise provides IoW Council, SRA and other stakeholders with the opportunity to help identify and facilitate the best way forward for the Island's railway, and the remit for this study is aimed at providing part of the input to that process.

2 EXISTING SITUATION

2.1 Description of former rail route network

The Island once enjoyed a railway network of approximately 60 route miles until the early 1950's. By 1956 the lightly used lines had closed to leave a system comprising the Ryde-Ventnor and Smallbrook -Newport- Cowes routes. This 26 mile network covered the majority of both the population on the Island and the major holidaymaker movements and it is these routes which form the principal focus for this study.

By winter 1966 only the Ryde – Shanklin route section remained operational, and this was electrified on the 3rd rail DC system and ex London Underground tube rolling stock replaced steam traction on the line.

The IoW Steam Railway established a presence on the closed Newport line at Havenstreet in the early 1970's and has progressively extended their re-opened route operating with steam traction between Wootton and Smallbrook stations.

2.2 Rail infrastructure on the Island

The Island Line infrastructure on the Shanklin – Ryde route has been rationalised in several stages since services have been withdrawn from the Ventnor and Newport routes, such that less line capacity exists to accommodate additional or amended service patterns on the existing route resulting from re-opening those closed route sections. The route is predominately single line with a passing loop at Sandown station and a double track section between Smallbrook Junction and Ryde, all controlled from a signal box at Ryde St Johns Road.

The IoW Steam Railway comprises single line with run round loops at Smallbrook and Wootton, and a platform passing loop at Havenstreet together with several sidings. There is currently no through physical connection between the steam railway and Island Line infrastructure. The IoW Steam Railway now own their operational land.

2.3 Former railway trackbed

The former track bed beyond Wootton to a point just before the former short tunnel in Newport south of the town centre, and from north of Newport town centre to the outskirts of Cowes is largely intact and is mainly in local authority ownership as foot / cyclepath. In Newport town a dual carriageway road and large industrial estate occupy the former rail formation. In Cowes a significant quantity of houses have been constructed on the formation.

South of Shanklin station a bridge has been removed and the formation has become a road to a holiday centre. In Wroxall a light industrial building and the back gardens of houses occupy the formation. At Ventnor the tunnel is in use by the water authority and a light industrial estate occupies the former station site.

Several former level crossings, underbridges and overbridges on the former routes have been removed and the former railway formation re-graded for footpath use.

2.4 Rolling stock

The existing Island Line vehicles are former London Underground Ltd (LUL) 1938 tube stock, brought over to the Island in 1989/90, converted to operate on the 3rd rail DC electrification system. Rolling stock is maintained at Ryde St Johns depot. The depot has sufficient capacity to support the fleet size required for route extension. On the IoW Steam Railway locomotives and coaching stock are principally restored examples of equipment withdrawn in the 1960's.

2.5 Passenger services

The existing service level on the Ryde-Shanklin route provides two trains per hour. Trains are normally of two-car length in Winter and four-car in the Summer months. The Island Line provides important connections with Wightlink ferries.

The IoW Steam Railway operates services at Weekends and this ramps up to a daily service during the summer months of up to approximately a dozen services per day. Connections are advertised with the Island Line at Smallbrook.

Through passengers for Newport and Cowes from Ryde Pier can travel via Island Line on the pier interchanging at Ryde Esplanade onto Southern Vectis bus services, where frequency and connections are relatively good, although interchange passenger facilities are rather poor.

For Ventnor connections at Shanklin are currently poor. Although Southern Vectis services operate two buses per hour they do not serve the station forecourt or approach road at Shanklin.

Island Line offers significantly faster journey times than bus services on the Ryde – Shanklin route, and importantly provides direct access to Ryde Pier Head. The former train services also offered significantly faster journey times than the current bus service for Ryde – Newport and Ryde - Ventnor journeys.

2.6 Markets and passenger demand

Overall 2% of residents using transport to travel to work on the Island use the Island Line railway, compared with 7% by bus (based on 1991 Census information).

The Ryde – Shanklin Island Line is used primarily by a mix of commuters both within the Island, and importantly across to Portsmouth by ferry, and to a limited extent beyond to London; by residents for leisure journeys, and for holiday makers and day tourists for trips from the mainland, notably the London conurbation, and thence within the Island on holiday.

Nearly half of Island Line passengers use the existing line to connect with the ferry via Pier Head.

3 STAKEHOLDER CONSULTATION

The Study Team have spoken with the Rail Passengers' Committee for Southern England who consider that the railway on the Island should be developed and expanded and supplied papers from the conference held earlier this year in Ryde arranged by the R.P.C. to consider the future of the railway on the Isle of Wight.

The IoW Council arranged an opportunity for the Study Team to meet with various user and interest groups, which augmented the record of their input at the Conference. These bodies included Wight Track, IoW Transport 2000, Ventnor Railway Association and the Isle of Wight Tramway. Although the views of these four bodies differed somewhat in the detail of suggested route alignments and priorities for expansion of the rail system on the Island, there was consensus on a number of key factors:

- the essential requirement to retain the existing Island Line;
- the significant potential non-financial benefit that rail expansion may bring;
- that light rail might bring significant advantage compared with conventional 'heavy rail' solutions including the ability to bypass encroachments on former rail trackbed, together with the possibility of a greater ability to penetrate town centres;
- that joint running with the IoW Steam Railway between Smallbrook and Wootton could be difficult but might be feasible;
- that priorities for rail expansion should include linking Newport, Cowes and Ventnor with Ryde and each other.

The Study Team have met with senior representatives at the IoW Steam Railway. The IoW Steam Railway is a registered educational charity that provides a tourist attraction through recreating the atmosphere of the pre-nationalisation steam railway and this is reflected in the infrastructure and rolling stock used on the line. The railway is operated and maintained largely by a volunteer workforce although there are some paid staff and some work is undertaken by outside contractors. During helpful discussions, the following was established with the IOW Steam Railway:

- There is an aspiration to extend steam train operations beyond Wootton although this is recognised as requiring significant infrastructure works.

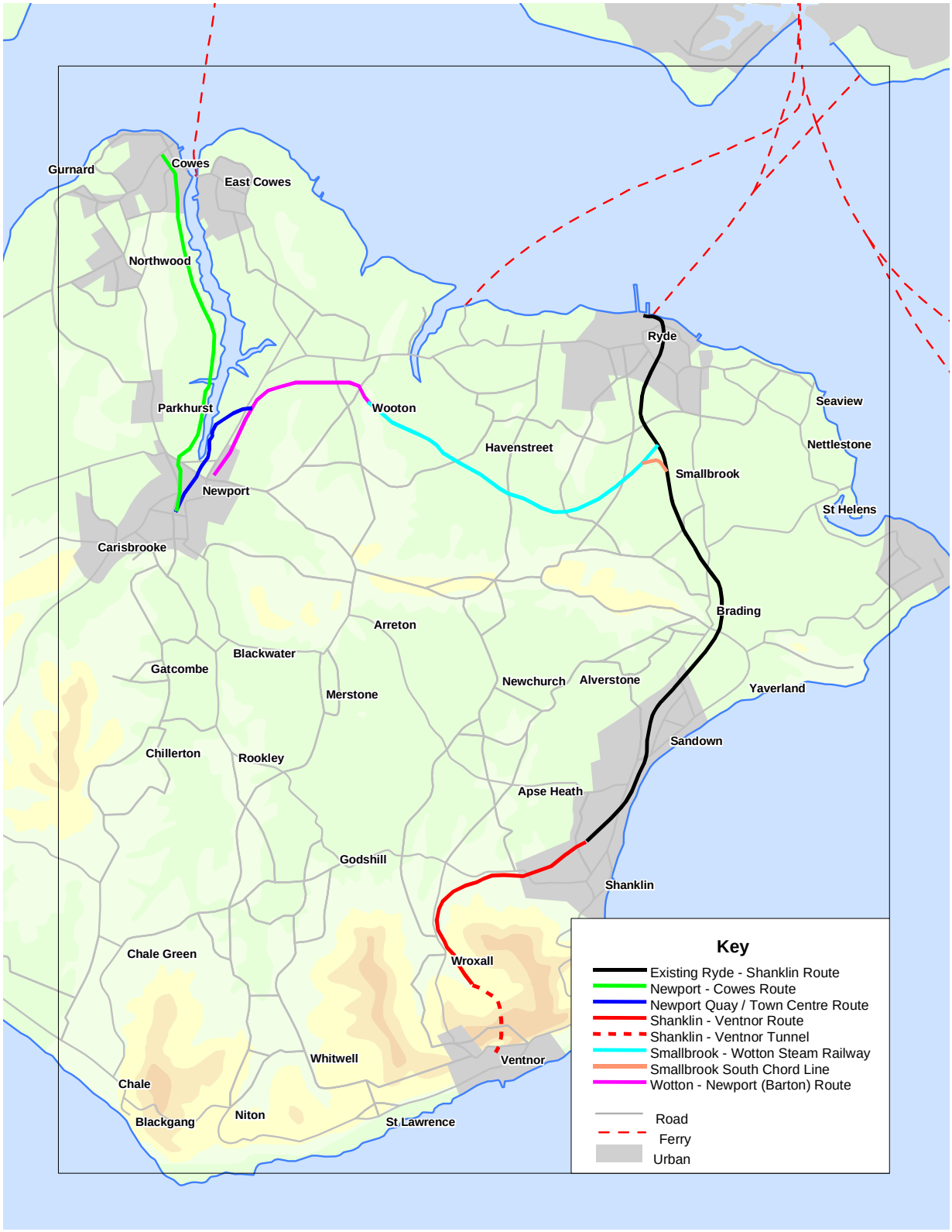
- They would be willing to consider the development of a diesel passenger service over their route in addition to existing steam train operations.

- Electrification between Smallbrook and Wootton would probably be impractical on aesthetic and safety grounds, and would be unlikely to gain HMRI approval.

- A track access charge could be levied by the Steam Railway to cover their additional infrastructure maintenance and operating cost for the services.

- They could potentially make use of an extension into Newport for steam trains, if a suitable locomotive run round facility were provided. Seam trains would continue to terminate at Smallbrook, unless Island Line was ever to vacate one of the running lines to Ryde St John's Road.

4 IDENTIFICATION OF POTENTIALLY FEASIBLE OPTIONS



Map showing potential rail route extensions identified and evaluated

4.1 Train service choices

Service development choices have been identified and evaluated to examine the traffic potential for route extension options.

- **Ryde - Ventnor:** extension of Ryde - Shanklin trains to Ventnor, calling at Wroxall.
- **Smallbrook – Newport (Barton):** a shuttle service from Smallbrook terminating in the east of Newport town adjacent to Victoria Road with connections for Island Line at Smallbrook.
- **Ryde – Newport (Barton):** through services from Ryde Pier Head to Newport (Barton) terminus.
- **Ryde – Newport (Quay):** the services would access Newport by means of a new alignment to Newport Quay involving a short section of 'street running' necessitating operation by appropriate light rail tram vehicles.
- **Ryde – Newport (town centre loop):** the services would access the centre of Newport by means of a street running loop via the Quay.
- **Shanklin - Newport & Ryde - Newport:** a Shanklin service via a new chord line south of Smallbrook to Newport town centre loop in addition to the above Ryde service.
- **Ryde – Cowes terminus via segregated rail route through Newport:** an attractive through journey time (Ryde –Cowes) would be sought by recreating a 'heavy rail' segregated alignment through Newport and into Cowes town (if found to be feasible).
- **Ryde – Cowes town centre via street running route through Newport:** services accessing Newport and Cowes town centres with street running in the towns.
- **Shanklin – Cowes plus Ryde – Cowes:** a Shanklin service via a new chord line south of Smallbrook to Cowes town centre in addition to the above Ryde service.
- **Ventnor – Cowes, Ryde – Ventnor and Ryde – Cowes:** this service tests the impact of any network synergy effect and assumes street running through Newport and into Cowes town centre.

Both hourly and half-hourly service frequencies have been evaluated for each of these service choices.

4.2 Traction and rolling stock choices

The rolling stock choices identified have enabled a comparison of:

- 'Heavy rail' vehicles suitable for conventional segregated railway such as the existing Island Line;
- 'Light rail' vehicles capable of street running; and
- Diesel vehicles, which could avoid the need for electrification infrastructure.

Provision of ex London Underground tube stock is compared with new build vehicles both electric and diesel, and new light rail vehicles. Traction options for new build examined include 3rd rail electric DC, overhead electric DC, dual pick-up electric, diesel and 3rd rail DC electro/ diesel.

The feasibility, compatibility and life cycle cost issues have been examined. An important factor to note is that new build diesel vehicles would incur approximately double the whole life cost of cascaded ex LUL refurbished 3rd rail electric vehicles. Other key factors include the limited structure gauge through Ryde Tunnel, the implications of joint running over the IoW Steam Railway and of street running.

4.3 Technical assumptions for route infrastructure assessment

The Isle of Wight railway network was built to a restrictive structure gauge and subsequent works do not comply necessarily with the current standards. The specification includes a 55 mph line speed. In considering the reopening of routes on the Island it has been assumed that new works will have to comply with current Railtrack and HSE standards although derogations would be sought for existing structures. The Technical Report details the level of specification assumed as an input to costing for permanent way, structures, stations, level crossings, and signalling.

4.4 Route extension infrastructure works

4.4.1 Shanklin to Ventnor

Much of the route formation remains as a footpath and most of the bridges remain intact. Locations where significant works have been identified include:

- **Shanklin:** provision of a passing loop with re-instated up platform, the construction of a new bridge over Landguard Road and the realignment of the access road to the holiday village together with an additional span over Hyde Road.

- **Wroxall:** reinstatement of the railway on the former horizontal alignment and a revised vertical alignment with a level crossing requiring full barriers and CCTV control, and provision of a single platform station.

- **Ventnor:** protection or diversion of the existing utilities including water main and communications cables in Ventnor Tunnel, provision of a single track station platform with car parking necessitating the dislocation of part of the existing industrial estate. Without the benefit of a detailed inspection of the tunnel, it has been assumed that work has been undertaken to maintain its structural integrity and that some repairs such as repointing will be required.

4.4.2 Smallbrook – Wootton – Newport

The IoW Steam Railway section between Smallbrook and Wootton is currently operated under a Light Railway Order. The increase in line speed from 25 mph to 55 mph necessary to provide competitive rail journey times will drive upgrading of the existing infrastructure. Beyond Wootton much of the formation to the outskirts of Newport remains as a public footpath with the exception of ¾ mile between Belmont Lane and Little Fairlee Farm. Several bridges have been removed on the approaching to the Barton area of Newport. Beyond Barton the alignment has been lost entirely to housing development, roads and an industrial estate.

Locations where significant works have been identified include:

- **Smallbrook Junction:** a single-track connection would be provided with the existing single to double junction being moved north towards Ryde. The alterations at Smallbrook would trigger the replacement of the Island Line signalling interlocking and panel.

- **Havenstreet:** trap points on connections between the sidings and the running lines, modifications to provide over-run protection, and allowance for revised platform access arrangements for passengers on safety grounds.

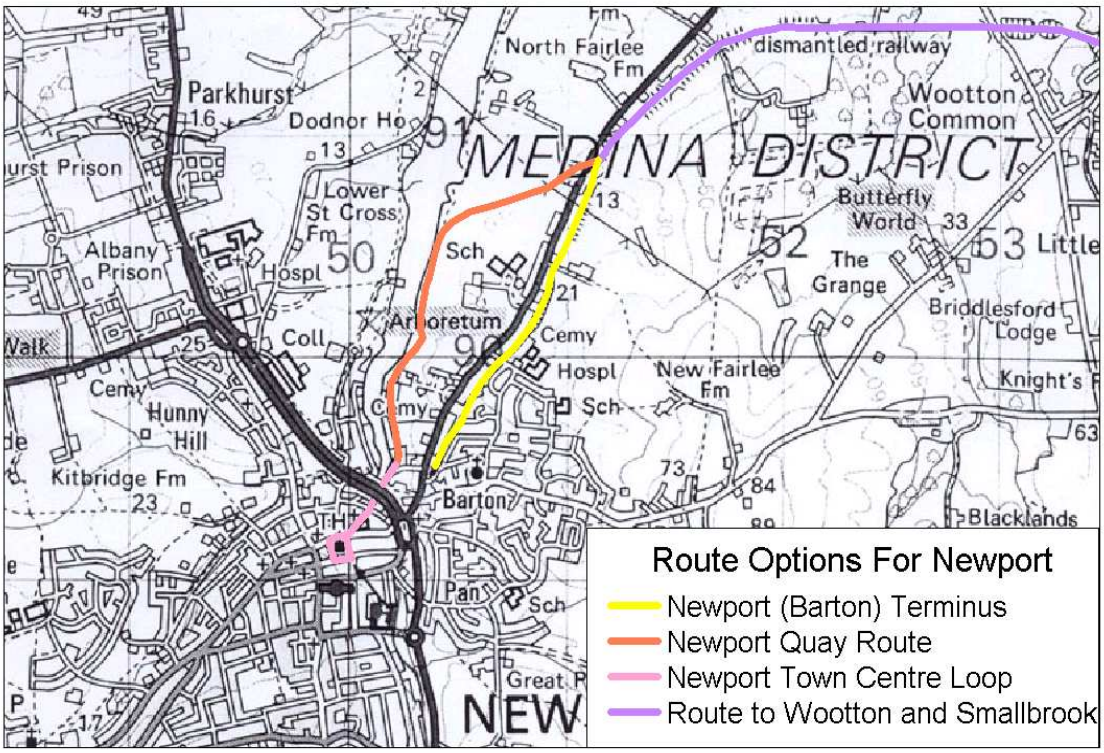
- **Wootton:** cutting to be restored with a retaining wall to maintain stability and protect adjacent property, in view of the local ground conditions allowance is made that a new bridge will be required. A station platform would be replicated on the reinstated alignment.

- **Park Road bridge:** re-instate the overbridge, which may require the railway formation to be lowered if the new road profile is to be maintained.

- **Belmont Lane bridge**: replacement with a modern equivalent structure in steel is assumed as the most cost-effective option, and south-west of Belmont Lane one underbridge and a section of earthworks requires re-instatement.

- **Halberry Lane bridge:** re-instate the overbridge, which also may require the railway formation to be lowered if the new road profile is to be maintained.

- **Newport (Barton) potential terminus station:** provision of a single platform with a run-round loop for steam trains adjacent to Victoria Road on the original railway alignment. The run round loop would be controlled by ground frame worked by train crew. A basic station with waiting shelter is assumed, although the opportunity exists for the IoW Steam Railway to provide a terminus building.



Map showing potential Ryde - Newport rail route options in Newport

4.4.3 Newport options and extension to Cowes

(a) Newport terminal options

The alternative routing options at Newport include:

- A new alignment from Fairlee to provide a terminal at Newport Quay: This is assessed to require a £2m additional outlay and require street running light rail tramcars given the significant number of service roads encountered and the joint use of the quayside itself by road vehicles.

- An option to extend with street running into Newport town centre would require the Quay route option and is assessed at a £6m additional outlay compared with the terminus option at Newport Barton.

(b) Extension through Newport to Cowes

Our assessment is that no economic heavy rail alignment can be recreated through Newport town (outline cost could be approximately £30m). Encroachment of the former rail formation in Newport and Cowes and a superior economic performance established in the service evaluation above, indicate that the street running tramcar option should be taken forward for evaluation of the Cowes route.

The very substantial encroachment on the former track formation means that street running is required in both Newport and Cowes, with very limited potential for segregation from road traffic. We envisage the tramway route making use of the former railway alignment from north of the Newport industrial estate taking an alignment to serve the college and thence via former railway formation until a point in Cowes prior to Artic Road / Smithards Lane area where significant private housing development now occupies the formation. The light rail tramcars would be capable of negotiating 1 in 12 gradients, however we consider that gradients may be found to be a stumbling block in Cowes were a more detailed assessment to be carried out. We assess that the resulting route offers little benefit to the passenger compared with road based public transport, e.g. in terms of journey times and may have a negative impact on road congestion at some locations.

4.5 Selection of strategic options for review

From the significant number of available choices we have established the following conclusions from the evaluation of each key parameter of choice as follows:

4.5.1 Train service choices

We concluded in assessing the train service choices (Section 4.1) that:

- In the case of the Ryde – Ventnor services, the half-hourly service performs better than the hourly in terms of economic contribution. Given that no additional infrastructure is required to run half hourly, the half-hourly option is carried forward to the detailed appraisal for the Ventnor route.

- In every other train service case considered the hourly service performs better in terms of economic contribution than the half-hourly service. Given that hourly services would, if anything, trigger less infrastructure cost (e.g. fewer passing loops), the hourly options are carried forward to the detailed option appraisal for the Ryde-Newport route and possible extension to Cowes.

- Service provision from Ryde to Ventnor, Ryde to Newport and possibly on to Cowes may be worthwhile depending on the scale of the infrastructure costs involved. However, all options running services along the Shanklin – Newport axis via a new south chord at Smallbrook give significant negative economic results whether services extend to Cowes and / or Ventnor or not. Such services via Smallbrook south chord are therefore rejected at this stage.

- There would appear relatively little to chose between the three routing options to and through Newport on annual benefit / operating cost grounds, and therefore the selection from these three for the Ryde - Newport option depends on the results from the infrastructure assessment and outlay estimates.

4.5.2 Rolling stock choices

We concluded in assessing the rolling stock choices (Section 4.2) that:

- The most economic rolling stock provision for the Shanklin to Ventnor route would be to operate ex LUL tube stock as an extension of the existing Ryde to Shanklin service, rather than incurring the higher costs of diesel or new build overhead pick-up electric vehicles and associated infrastructure and depot costs.

- Services on the Ryde - Newport route would be operated with purpose built diesel railcars given the likelihood that Her Majesty's Railway Inspectorate (HMRI) and the IoW steam railway themselves would be very unlikely to approve electrification on a preserved steam heritage line on safety grounds. Furthermore electrification equipment may detract from the heritage ambience.

- HMRI approval would be significantly more difficult to achieve for light rail street tramcars rather than for conventional railcar multiple unit vehicles, when considering the case of joint running on the preserved heavy rail route between Smallbrook and Wootton. This is principally in terms of the likely consequence in the event of collision.

4.5.3 Route infrastructure options

We concluded the following in our infrastructure works assessment (Section 4.4):

- Our preliminary feasibility assessment favours provision of a terminus at Newport (Barton) adjacent to Victoria Road. This view is based on cost, on minimising vehicular and pedestrian conflict with a segregated way, and on providing the opportunity for extension of IoW steam operation into Newport.

- The alternative of developing a new alignment from Fairlee to provide a terminal at Newport Quay is assessed to require a £2m additional outlay and would achieve similar passenger benefits. It would require a level crossing across the main road. It would require street running light rail tramcars, given the significant number of service roads encountered and the joint use of the quayside itself by road vehicles. Indeed on market days the quay area can become rather congested with pedestrian and vehicular traffic.

- The option to extend with street running into a Newport town centre reverse loop would require the Quay route option and is assessed at a £6m additional outlay compared with the terminus option at Newport Barton with modest additional passenger benefit.

4.5.4 Selected options

Therefore we have selected the following three options comprising potentially compatible combinations of infrastructure, rolling stock, and train service specification. These have been developed for the purposes of this report, to assist in the examination of the likely case for the route reopening. Options 2 and 3 are mutually exclusive:

- **Option 1:** *Half-hourly extension of Ryde Pier Head – Shanklin 3rd rail ex LUL tube electric trains to Wroxall and Ventnor;*

- **Option *2*:** *Provision of hourly diesel train Ryde Pier Head – Newport (Barton) terminus over extended steam railway; or*

- **Option *3*:** *Provision of hourly diesel light rail tramcars Ryde Pier Head – Cowes with street running in Newport and Cowes*

We have some reservations concerning the feasibility of Option 3 but have included it to show the results of the economic evaluation of that route.

5 FINANCIAL AND ECONOMIC EVALUATION

5.1 Basis of evaluation

An outline financial and economic appraisal of the strategic options outlined above has been carried out and includes the results from the following tasks:

- Assessment of rolling stock requirement and indicative outlays
- Assessment of infrastructure requirements and indicative outlay estimation
- Estimation of annual operating and maintenance costs
- Estimation of annual passenger demand and revenue effects
- Estimation of economic benefits to rail users and road users
- Calculation of Present Values and economic performance measures.

5.2 Estimated infrastructure capital outlays

Route section	Spot costs at 2001 prices rounded to nearest £1m	Key risks.
Shanklin – Ventnor	**£ 15 million**	• Deliverability of level crossing alignment at Wroxall. • Feasibility and costs of protecting / relocating services in Ventnor Tunnel
Ryde Pier Head – Newport (Barton terminus)	**£ 14 million**	• Feasibility & costs of Newport station. • Acceptability to HMRI of signalling arrangements on IoW Steam Railway.
Ryde - Newport Quay	**£16 million**	• As above plus availability of diesel tramcars which clear Ryde Tunnel. • HMRI acceptability of diesel street tramcars joint running with heavy rail on IoW Steam Railway & Island Line
Ryde - Newport Town Centre	**£20 million**	• As above plus route feasibility into Newport centre
Ryde - Newport Town Centre - Cowes	**£34 million**	• As above plus route feasibility into Cowes
All routes		• Condition of existing redundant formation and structures.
Exclusions		Any land purchase and property costs.
		Any major utility diversions.
		Any Steam Railway station building at Newport.
		Any new station access roads and car parks.
		Transport and Works Act Order and all associated consents.

Table 5-A Summary of outlay estimates, risks and exclusions

5.3 Ongoing operating and maintenance costs

The costs in the evaluation include the relevant incremental costs affected by changes to the provision of services, rolling stock and infrastructure and do not include other existing costs which we would expect to be relatively unaffected by the route extension options; e.g. operations control, management, administration and other existing general overheads.

5.4 Annual passenger revenue

Passenger demand and revenue assessment are based on a review of existing and historic revenue results of existing Island rail flows together with results from a Jacobs Consultancy rail demand spreadsheet model built specifically for this study. This model is primarily a trip rate model but also adjusts for changes to relative generalised costs for each option. The revenue included in the evaluation is based on overall UK rail revenue gain, Island revenue is also shown. We have assumed no underlying growth for the domestic intra-island flows nor for the cross-Solent rail demand in line with overall trends over the past seven years.

5.5 Results

The economic value of each option comprises the incremental rail revenue to all operators plus unpriced benefits and costs incurred on the Isle of Wight. This approach is based on our assessment that the incremental demand (which is largely off peak) can be carried at no additional cost to mainline operators and that there are negligible unpriced impacts on the mainland (where most of the passengers new to the Island Line would have the same travel options as previously).

The economic impact includes unpriced User Benefits, which includes time savings to users of the proposed train services, and unpriced Non-user Benefits, which includes an assessment of the reduction in road traffic with resultant time savings, vehicle operating cost and accident cost savings to remaining road traffic. The values we have adopted are consistent with current values used for the Strategic Rail Authority, including the Island Line study, and are based DLTR recommended values. Economic benefit values are increased in line with forecast GDP growth.

The basis for our conclusions on the economic case for the options is the assessment of economic NPV. A variety of further evaluation measures may be adopted by potential funding bodies, for example the SRA, in their decision making which could include both quantified and unquantified factors (such as those representing integration and accessibility). Additional measures including, for example, Benefit/Cost ratio and NPV/ Subsidy may be used to enable benchmarking taking into account limits placed on the total subsidy available. The SRA Planning Criteria encompasses, in addition, unquantified benefits. In our view all the options for rail system expansion evaluated would contribute such benefits especially in the area of accessibility and integration.

6 CONCLUSIONS

6.1 Summary of results

This study has evaluated the likely feasibility and economic case of options for railways on the Isle of Wight, principally the routes from Ryde to Shanklin and thence to Ventnor and from Ryde to Newport via Smallbrook Junction and Havenstreet, with a possible extension to Cowes. An initial appraisal identified three options as being of sufficient potential to carry forward to a more detail evaluation:

Option 1: Ryde – Shanklin extension to Ventnor

Reinstatement of the railway between Shanklin and Ventnor, operating a half-hourly service as an extension of the current Ryde-Shanklin railway using cascaded LUL tube rolling stock and with 3rd rail electrification.

This option provides ample economic benefits to cover operating costs. According to standard SRA planning criteria these are insufficient to cover the substantial initial infrastructure outlays (cost benefit ratio of 0.92). There may be disruption disbenefits and risks relating to this option, principally concerning water supplies currently using the tunnel at Ventnor and the need to remove light industrial units occupying the track bed at both Ventnor and Wroxall.

Option 2: Ryde - Newport

Reinstatement of the railway between Wooton and Newport (Barton), upgrading of the IoW Steam Railway between Smallbrook Junction and Wooton for 55 mph line speed with shared operation. An hourly service would operate between Ryde and Newport using purpose built diesel multiple unit stock. The scope and case for a more frequent service in peak hours, would be considered at more detailed feasibility stage. 'Heavy rail' is selected to ensure compatibility with existing heritage rolling stock in terms of safety case.

This option provides good value for money according to standard SRA planning criteria (cost benefit ratio of 1.23). We consider that this option may be progressed further and could be appropriate for SRA Rail Passenger Partnership funding. A spin-off benefit not quantified would be the potential for the IoW Steam Railway to operate into the Newport terminus.

Option 3: Ryde – Newport - Cowes

Provision of Option 2 together with an extension using street running through Newport to Cowes to operate an hourly service from Ryde to Cowes using purpose built diesel trams.

Although this option provides substantial economic benefits these are insufficient to cover the very substantial initial infrastructure outlays (cost benefit ratio of 0.8). The very substantial encroachment on the former track formation means that street running is required in both Newport and Cowes, with very limited potential for segregation from road traffic. We conclude that this option offers little benefit to the passenger compared with road based public transport and may have a negative impact on road congestion at some locations.

6.2 Recommendations

We advocate that the following approach be adopted by the Council:

6.2.1 Ryde - Newport

The Ryde to Newport route (Option 2) be developed to more detailed full-feasibility stage: to further refine the specification, capital costs, and demand forecasts.

6.2.2 Extension to Ventnor

As the extension of Ryde – Shanklin line to Ventnor (Option 1) provides a slightly negative economic case in purely transport terms, the Council may wish to consider whether additional benefits relating to regeneration of Ventnor or social accessibility for its residents may be applicable.

If this scheme is to be developed further then the feasibility of removing the water supply from the tunnel and the impacts of the relocation of industrial units should be investigated.

6.2.3 Cowes Extension

Extension beyond Newport to Cowes (Option 3) offers a relatively weak economic case and doubtful advantage over road based public transport. We conclude that developing a rail service for the Cowes - Newport corridor should not be viewed as a high priority.

6.2.4 Next Steps

We recommend that the study findings be discussed with:

- the Strategic Rail Authority to consider how best the emerging worthwhile options may be progressed. In addition the SRA will then be able to establish goodness of fit with their emerging strategy for Island Line.

- the Isle of Wight Steam Railway to further establish the scope for shared running access onto their infrastructure.

We suggest that the possibility of connecting rail / bus links, with through ticketing, should be investigated as a potential interim improvement in accessibility: a likely priority for this could be Shanklin station to Ventnor.